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Some Solutions to Improve the Quality of Vietnam's Human Resources

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Abstract

Improving the quality of human resources associated with promoting innovation, application and strong development of science and technology is one of 12 key tasks and solutions of the 5-year socio-economic development plan 2021 - 2025 of Vietnam (Resolution No. 16/2021) /QH15). The vocational education development strategy for the period 2021-2030, with a vision to 2045, clearly states that vocational education development is the most important task in human resource development to take advantage of opportunities in population, education, into a direct human resource of high quality, efficiency, and effectiveness. Professional qualifications, serving the country's socio-

economic development. (Decision No. 2239/QD-TTg, 2021). This study is based on official data published by World Bank Group, United Nations Development Programme, United Nations Population Fund, Asian Productivity Organization, General Statistics Office of Vietnam, Vietnam Productivity Institute. Analysis results show that the quality of Vietnam's human resources is increasing but there is still a shortage of technical workers with intermediate and college degrees, and social labor productivity is still low. Based on that analysis, the article offers some specific solutions to improve the quality of human resources.

Keywords: Human Resources, Labor Resources, Labor Force, Labor Productivity, Total Factor Productivity, Quality of Human Resources

1. Introduction

Humans are the most important factor, which combine other factors to create the production process. Investing in human resource development, improving labor productivity, creating motivation for growth and development is the goal of every country.

With the advantage of "golden population structure", Vietnam has abundant human resources in quantity. However, the quality of human resources still does not meet actual requirements: workers without technical expertise still account for a large proportion, and labor productivity is low. Vietnam needs solutions to improve the quality of human resources to meet the needs of economic development and international integration.

2. Theoretical basis

Human resources, labor source, labor force

Human resources are the most important and dynamic factor of socio-economic growth and development. According to Nguyen Tiep (2011), a country's human resources are considered from two perspectives:

As a source of labor for society, in the broadest sense, human resources include the entire population capable of working. (Nguyen Tiep, 2011). According to this understanding, human resources is equivalent to the concept of labor resources.

As the ability to undertake the main labor of society, human resources are understood in a narrower sense, including the working-age population group with the ability to work (as prescribed by labor law). According to this understanding, human resources is equivalent to the concept of the labor force.

Nguyen Thanh Binh and Do Thu Huong (2018) ^[12], labor source is people of working age, capable of working and people over working age, actually working. The labor force is people of working age or older and people of working age who are capable of working, but do not work for the following reasons:

- Unemployed
- Going to school
- Being a housewife in her family

- No need to work
- People in other statuses who have not yet participated in labor.

The article analyzes the quality of human resources through GSO's labor force indicators. The labor force (also known as the current economically active population) includes people aged 15 and over who are employed or unemployed during the reference period (7 days before the observation time). (Statistical yearbook, 2022)^[8].

Quality of human resources

Nguyen Tiep (2011), the quality of human resources is expressed in the following aspects:

- Health
- Educational level
- Technical qualification
- Practical capacity in knowledge and professional skills
- Social dynamism (ability to be creative, adaptable, flexible, responsive to work and society; level of willingness to participate in labor...)
- Ethical qualities, style, attitude towards work and working environment...
- Efficiency of labor activities of human resources
- Income, standard of living and level of satisfaction of personal needs (physical and spiritual needs) of employees.

Indicators reflecting quantity of human resources

With official data published from the GSO, WB, UNDP, APO, the article selects a number of indicators to analyze Vietnam's human resources:

- The size of labor force and age structure of the labor force demonstrates the ability to mobilize human resources for socio-economic development.
- Comprehensive indicators measure knowledge, skills, health, and income: Human Capital Index (HCI); Human Development Index (HDI)
- Indicators reflecting the labor efficiency of human resources: Social labor productivity; total factor productivity (TFP), contribution of human resource quality to GDP growth, contribution of human resource quality to labor productivity growth.

Human Capital Index (HCI)

The World Bank (2021)^[17], human capital consists of the knowledge, skills, and health that people accumulate over their lives. The Human Capital Index measures the amount of human capital that a child born today can expect to attain by age 18. The Index measures each country's distance to the frontier of complete education and full health for a child born today. HCI includes:

- Component 1: Survival: Survival from birth to school age, measured using under-5 mortality rates.
- Component 2: School: Expected years of learning-adjusted school, combining information on the quantity and quality of education.
- Component 3: Health: (1) adult survival rates, defined as the fraction of 15-year-olds who survive until age 60, and (2) the rate of stunting for children under age 5, summarizes the risks to good health that children born today are likely to experience in their early years.

The Human Capital Index (HCI) ranges between 0 and 1. The index is measured in terms of the productivity of the next generation of workers relative to the benchmark of complete education and full health. An economy in which a child born today can expect to achieve complete education and full health will score a value of 1 on the index.

Human Development Index (HDI)

The Government, Decree 97/2016/ND-CP, the Human Development Index (HDI) is a comprehensive measure reflecting human development in the following aspects: Health (represented by average life expectancy from birth); knowledge (represented by the education index) and income (represented by total national income per capita).

The HDI takes a value from 0 to 1. The closer the HDI is to 1, the higher the level of human development, whereas the closer it is to 0, the lower the level of human development.

The human development index is calculated according to the formula:

$$HDI = (I_{health} \times I_{education} \times I_{income})^{1/3}$$

In there:

- I_{health} : Average life expectancy index from birth;
- $I_{education}$: The education index is calculated by simply multiplying the average number of years of schooling and the expected number of years of schooling;
- I_{income} : Index of total national income per capita calculated by purchasing power parity (PPP – USD).

According to the General Statistics Office of Vietnam (2022), labor productivity (labor productivity of the entire national reference period).

Calculation formula:

$$\text{Labor productivity} = \frac{\text{Gross Domestic Product (GDP)}}{\text{Average total number of people working}}$$

Total factor productivity (TFP)

Total factor productivity is the production result brought about by improving the efficiency of using fixed assets and labor or tangible factors, thanks to the impact of these factors. Intangible factors such as technological innovation, production rationalization, management improvement, improving workers' labor qualifications... (Collectively referred to as synthetic factors).

The growth rate of total factor productivity is measured by the rate of increase in production output due to improving the productivity of total factors.

Calculation method:

The aggregate production function is assumed to have the following general form:

$$Y = f(K, L, t)$$

In there:

- Y (GDP): Gross domestic product;
- K and L: Total inputs of capital and labor;
- t: Time.

The simplest assumption about the impact of time is progress in economic efficiency such as technology and management methods, which assumes that this impact

increases the volume of products produced from a combination of products. Certain combination of two factors of production: Capital and labor. However, it has no effect on the relative marginal products of the individual factors of production. The individual marginal product of a factor of production is the increase in the quantity of output produced when the input of that factor of production increases by one unit, given that the inputs of other factors of production are equal. Constant.

With this assumption, the production function can be written as follows:

$$Y_t = A_t f(K_t, L_t)$$

With A is progress in economic efficiency such as technology, management and operating methods... (Collectively known as total factor productivity).

The growth rate of total factor productivity is determined through the formula:

$$GA = GY - bKGK - bLGL$$

In there:

GY: GDP growth rate;

GK: Growth rate of capital,

GL: Growth rate of labor;

bK and bL: slope coefficient of capital and labor.

3. Research methods

Analytical data source: The article uses data from the Statistical Yearbook published annually, the results of the Vietnam Living Standards Survey conducted every two years, and the Labor and Employment Survey Report 1/7 Annually, Report on the results of the population change and family planning survey on April 1 annually, and the official results announced by the General Statistics Office. The article uses indicators that reflect opportunities to participate in education, educational outcomes, employment opportunities and income of trained workers.

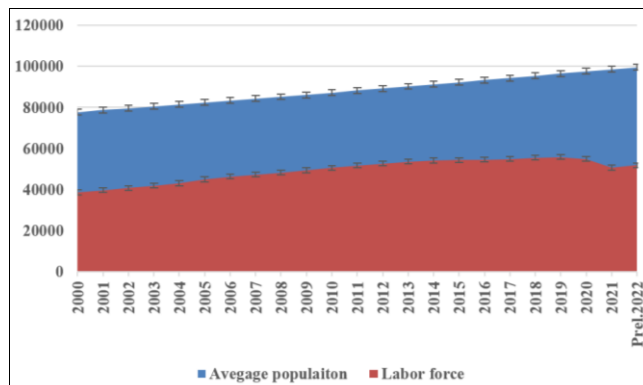
Scope of research: Vietnam in the period 2012-2022.

Analysis method: Compare differences (relative or absolute) in indicators reflecting educational opportunities and benefits between urban and rural areas in Vietnam over time.

4. Research results

4.1 The scale of human resources is increasing while the population is aging rapidly

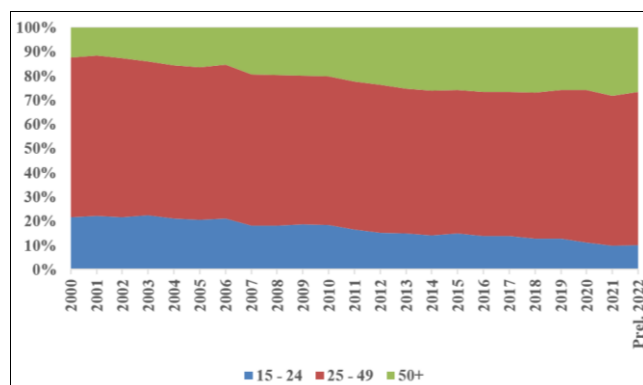
Vietnam has an advantage in the number of human resources. Human resources are large in scale and have gradually increased over the years. In 2020, the workforce aged 15 and older is estimated to decrease by 1.2 million people compared to 2019 due to the impact of the Covid-19 epidemic.



Source: General Statistics Office of Vietnam

Fig 1: Average population and Labor force of Vietnam, period 2000-2022 (Thous.persons)

According to preliminary data for 2022 from the General Statistics Office, Vietnam's average population was 99.974 million people. Vietnam was the second most populous country in Southeast Asia and ranked 15th in the world. The labor force was 51.705 million people, accounting for 51.98% of the population.



Source: General Statistics Office of Vietnam

Fig 2: Labor force at 15 years of age and above by age group, period 2020-2022 (%)

However, Vietnam is in the process of "population aging" and is considered one of the countries with a rapid aging rate. In 2022, workers aged 15-24 account for 10.1%, 25-49 account for 63.18%, 50+ account for 26.72% of the labor force. Vietnam is currently in the "demographic window of opportunity" period, and according to the General Statistics Office's forecast, Vietnam will become an aged population country by 2036, and super-aged country by 2056. This causes the changing of the structure of human resources, the young labor force is no longer an advantage for economic development.

Improving the quality of human resources and increasing labor productivity is the solution for Vietnam's sustainable development, preparing for the aging population.

4.1.2 The quality of human resources has increased but the structure of training qualifications has not met the requirements of economic development

The quality of Vietnam's human resources is gradually increasing over time however, it still does not meet the requirements of domestic production and business activities. Vietnam does not have enough specialized and highly skilled workers, and the structure of training and technical qualifications of workers is still unreasonable. This leads to low social labor productivity.

Vietnam's Human Capital Index (HCI) ranks second in Southeast Asia

According to calculations by the World Bank 2020, Vietnam's HDI scores 0.69, this indicates that the future earnings potential of children born in Vietnam today will be 69% of what they could have been with complete education and full health. The index can directly be linked to scenarios for the future income of countries as well as individuals. If Vietnam reached the benchmark of complete education and full health, future GDP per worker could be increase 31%.

Table 1: Human Capital Index and components: 2020, 2010

Country	Rank 2020	Components of HCI 2020						HCI 2020	HCI 2010
		Probability of survival to age 5	Expected years of school	Harmonized test scores	Learning-adjusted years of schooling	Adult survival rate	Fraction of children under 5 not stunted		
Singapore	1	1	13,9	575	12,8	0,95	-	0,88	0,85
Vietnam	38	0,98	12,9	519	10,7	0,87	0,76	0,69	0,66
Brunei Darussalam	56	0,99	13,2	438	9,2	0,88	0,8	0,63	-
Malaysia	62	0,99	12,5	446	8,9	0,88	0,79	0,61	0,58
Thailand	63	0,99	12,7	427	8,7	0,87	0,89	0,61	0,58
Indonesia	96	0,98	12,4	395	7,8	0,85	0,72	0,54	0,5
Philippines	103	0,97	12,9	362	7,5	0,82	0,7	0,52	-
Cambodia	118	0,97	9,5	452	6,8	0,84	0,68	0,49	-
Myanmar	120	0,95	10	425	6,8	0,8	0,71	0,48	-
Lao PDR	126	0,95	10,6	368	6,3	0,82	0,67	0,46	-
Timor-Leste	128	0,95	10,6	371	6,3	0,86	0,54	0,45	0,41

Source: The Human Capital Index 2020 update, 2021

Vietnam's Human Capital Index (HCI) ranks second in Southeast Asia, ranks 38th among the 174 surveyed economies. Vietnam scored high in component 2 (education) demonstrating that the quantity and quality of Vietnam's education makes a major contribution to HCI.

Vietnam needs to improve scores in component 1 (survival) and component 3 (health), especially component 3. Adult survival rate reached 0.87 points, showing that 87% of 15-year-old children survive until age 60. The rate of children under 5 years old who are not stunted reached 0.76 points, showing that there are still 24% of children under 5 years

old who are stunted.

Vietnam's Human Capital Index (HDI) is in the group of countries high human development

Vietnam strives to maintain economic growth and progress in human development. Vietnam's HDI value of 0.703 in 2021 is basically unchanged compared to 2019 (0.704), but Vietnam has increased 2 places on the global rankings from 117/189 countries in 2019 to 115/191 countries joining in 2021. (UNDP Vietnam, 2022).

Table 2: Human Development Index, 2021, 2022

HDI rank 2022	Year 2021		Year 2022	
	Value	Rank	Value	Rank
Very high human development				
- Singapore	0,939	12	0,949	9
- Brunei Darussalam	0,829	51	0,823	55
- Malaysia	0,803	62	0,807	63
- Thailand	0,8	66	0,803	66
High human development				
- Vietnam	0,703	115	0,726	107
- Indonesia	0,705	114	0,713	112
Medium human development				
Philippines	0,699	116	0,71	113
Lao PDR	0,607	140	0,62	139
Myanmar	0,585	149	0,608	144
Cambodia	0,593	146	0,6	148
Timor-Leste	0,607	140	0,566	155

Source: Human Development Report 2022/2023, UNDP

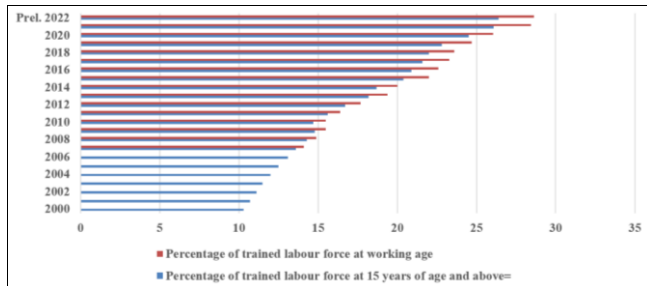
According to HDR 2023/2024, Vietnam is in the group of countries with a high level of human development. Vietnam's HDI index in 2022 reached 0.726 points, ranked 107th among countries participating in the ranking, ranked 5th in Southeast Asia, ranked after Singapore, Brunei

Darussalam, Malaysia, and Thailand. On average, HDI increased by 1.22% per year during the period 1990-2022. Vietnam has made steady progress in all three dimensions of the HDI since the 1990s: Gross national income per capita, life expectancy and average years of schooling. This shows

that the quality of Vietnam's human resources is increasing.

The level of training and technical expertise gradually increases, but the structure is still unreasonable

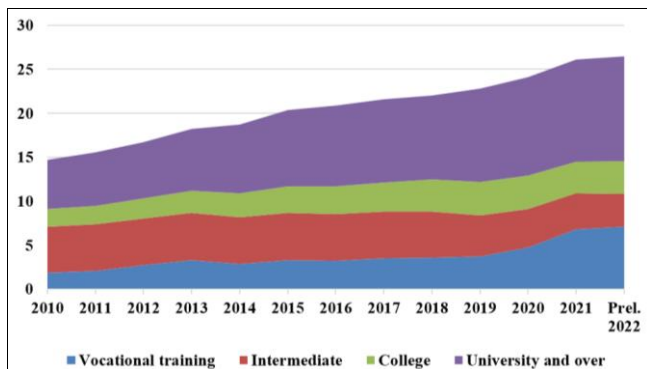
The educational level and technical expertise of Vietnamese human resources are constantly improving, especially among workers with university degrees. However, vocational training still has many limitations, not providing enough highly specialized technical labor.



Source: General Statistics Office of Vietnam

Fig 3: Percentage of trained labor force at 15 years of age and above, and at working age, period 2000-2022 (%)

According to data published by the General Statistics Office, in 2010, the rate of trained workers aged 15 and above was 14.7%, the rate of trained working-age workers was 15.5%. In 2022 compared to 2010, the rate of trained workers aged 15 and above increased by 11.7%, and the rate of trained working-age workers increased by 13.14%. Although the training level of the workforce was gradually increasing, by 2022, there was 73.6% of the workforce and 71.36% of the workforce of working age who have not been trained.

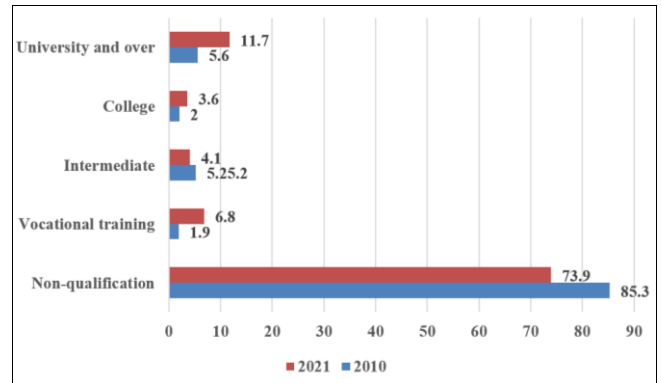


Source: General Statistics Office of Vietnam

Fig 4: Percentage of trained labor force at 15 years and above by qualification, period 2010-2022 (%)

The structure of technical and professional qualifications of the workforce is also unreasonable during the period 2010-2022. Workers with university and over degree account for the highest proportion and are constantly increasing. Meanwhile, the rate of college and intermediate level did not increase correspondingly. In particular, the rate of intermediate level decreased. In 2022, the ratio between the workforce with college and over – intermediate - vocational

training was 1-0.24-0.46.



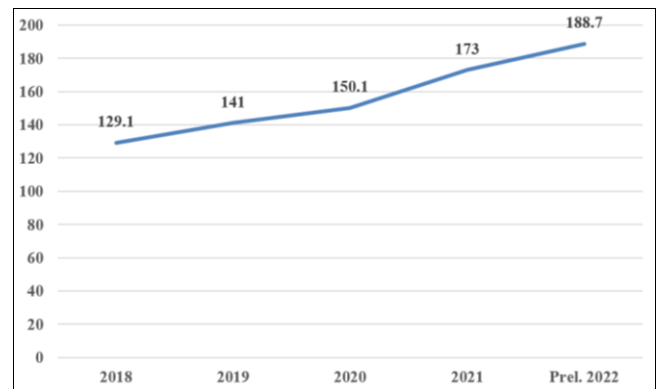
Source: General Statistics Office of Vietnam

Fig 5: Structure of labour force at 15 years of age and above by qualification in 2010, 2022 (%)

Compared to 2010, in 2022, the proportion of the workforce with a university degree and over increased by 6.1%, primary education increased by 4.9%, college degree increased by 1.6%, intermediate level decreased by 1.1%. Vietnam has not yet solved the problem: Lack of high-skilled workers and high qualified technical workers. This has a significant impact on the working efficiency of Vietnamese human resources.

Labor productivity increased but the contribution of labor quality was limited

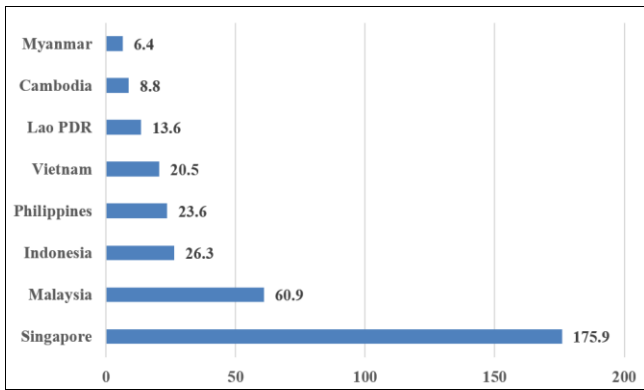
Vietnam's labor productivity is constantly increasing, but compared to other countries in the region, it is still low. The quality of human resources has not taken on the role of a strong driving force to improve labor productivity, has not met the needs of economic development.



Source: General Statistics Office of Vietnam

Fig 6: Labour productivity, period 2018-2022 (Mil.dong/employed)

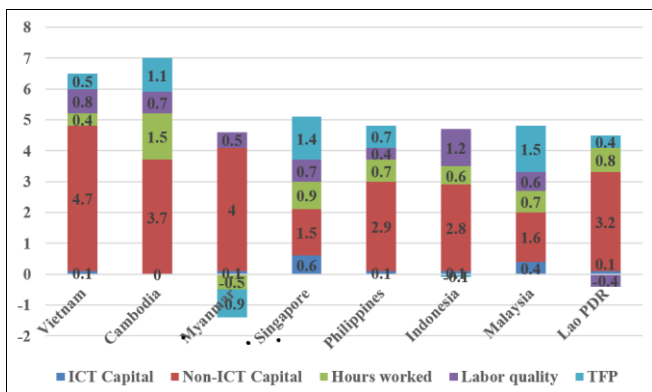
According to data from the General Statistics Office, social labor productivity increases by an average of about 10% per year in the period 2018-2022. In 2018, Vietnam's social labor productivity reached 129.1 million VND/person, and in 2022 it reached 188.7 million VND/person.



Source: APO Productivity Database 2023

Fig 7: Per-Worker Labor Productivity Level in 2021 (Thousands of US dollars)

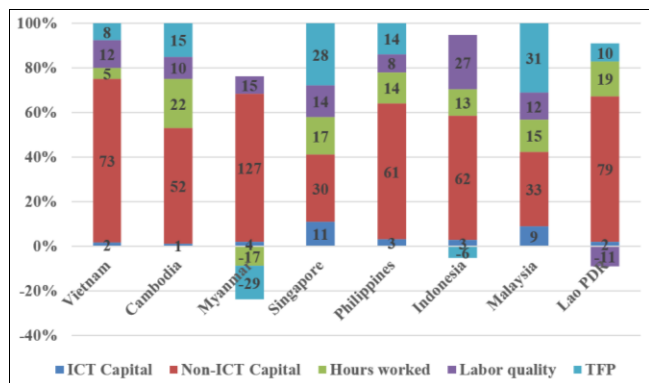
However, according to the Asian Productivity Organization, Vietnam's labor productivity per worker in 2021 reached 20.5 thousand US dollars/person, 10th lowest among Asian countries, 4th lowest among Southeast Asia countries, just above the labor productivity of the Lao PDR, Cambodia, and Myanmar. Vietnam's labor productivity is only 33.67% of Malaysia's labor productivity and 11.65% of Singapore's labor productivity.



Source: APO Productivity Database 2023

Fig 8: Sources of Economic Growth, 2000-2021

Fig 8 show GDP growth and contributions of capital, labor, and TFP (Total Factor Productivity). Fig 9 show contribution shares of capital, labor, and TFP. Fig 8 and 9 present the sources of economic growth by Vietnam and Southeast Asia countries from 2000 to 2021.

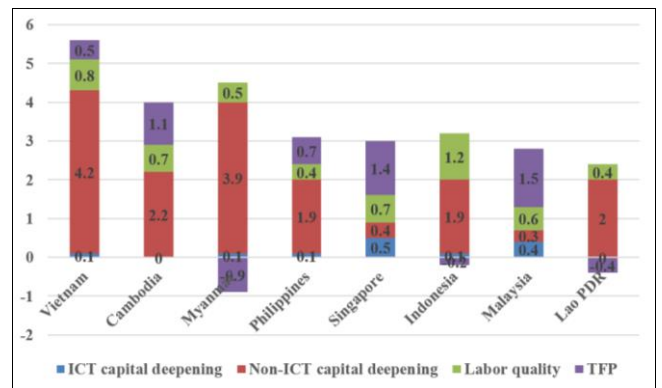


Source: APO Productivity Database 2023

Fig 9: Contribution Share of Economic Growth, 2000-2021

Fig 8 gives the absolute contributions, the 6.5% GDP growth for Vietnam consist of 0,1 (ICT capital) + 4.7 (nonICT capital) + 0.4 (hours worked) + 0.8 (labor quality) + 0.5 (TFP growth). Fig 9 gives percent share of each factor's contribution, adding to 100% (TFP can be negative). These show that 79% of economic growth was achieved by capital accumulation (73% for non-ICT and 2% for ICT capital), well above the labor quality of 12% contribution rate, the TFP growth rate of 8% contribution rate, indicating a major role of capital accumulation in Vietnam economic growth.

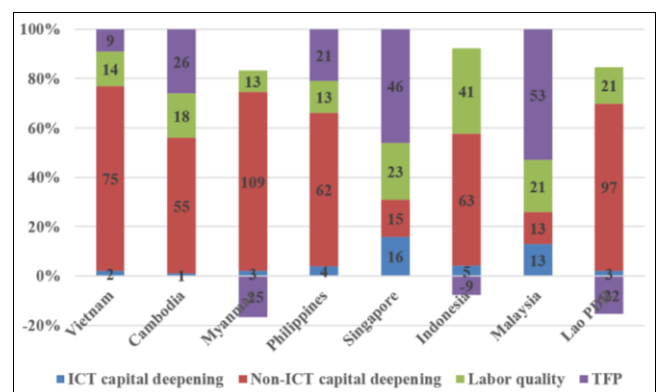
In countries with high labor productivity like Singapore and Malaysia, TFP, labor quality, and ICT capital factors contribute more to GDP growth than countries with low labor productivity like Vietnam.



Source: APO Productivity Database 2023

Fig 10: Sources of Labor Productivity Growth, 2000-2021

Fig 10 show per-hour Labor Productivity growth and contributions of ICT capital deepening, non-ict capital deepening labor quality, and TFP (Total Factor Productivity). Fig 11 show contribution shares of ICT capital deepening, non-ict capital deepening labor quality, and TFP. Fig 10 and 11 present the sources of per-hour labor productivity growth by Vietnam and Southeast Asia countries from 2000 to 2021.



Source: APO Productivity Database 2023

Fig 11: Contribution Share of Labor Productivity Growth, 2000-2021

According to these figures, it remains the prime engine of labor productivity growth, explaining 77% (75% for non-ICT and 2% for ICT capital) in Vietnam. The contribution of improvement in labor quality was 14% TPF was 9%.

In countries with high labor productivity like Singapore and Malaysia, labor quality, and TPF contribute more to labor productivity growth than countries with low labor productivity like Vietnam.

5. Continue solutions to reduce educational inequality between men and women, improve employment status and income for women in Vietnam

From the current situation such as: Rapid population aging, low health of human resources, lack of skilled and highly technical labor, low level of application of information and communication technology, the quality of human resources has not taken on the role of a strong driving force to improve labor productivity, has not met the needs of economic development. The article offers some specific solutions to improve the quality of Vietnamese human resources:

Improving the health of human resources in the future:

- Universalize education in schools on proactive health care according to age, including nutrition; sport; time for study, work, rest, and entertainment.
- Schools need to invest more in physical education.
- Residential areas need to have areas for physical exercise.

Encourage workers to participate in studying at intermediate and vocational levels

- Provide many free online teaching programs, with videos illustrating vocational practice, increasing opportunities to access vocational training programs for students in difficult circumstances.
- Provide many scholarships for students of vocational schools.
- Have policies for businesses to accept vocational students for internships at businesses, improving internship and employment opportunities for vocational students.

Developing science and technology and the ability of workers to apply science and technology, creating momentum to increase labor productivity

- Have a policy to attract talent and attract Vietnamese scientists from around the world to participate in the country's development.
- Have good policies for businesses applying high science and technology to production.
- There are preferential policies for schools that apply advanced technology in teaching.
- Invest in developing a team of information technology teachers and apply teaching international information technology certificates in the national education system.

Research and develop a synchronous plan for using workers over working age, consistent with the trend of population aging and shifting working age structure.

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